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(54) **METHOD FOR MEASURING SKIN HYDRATION**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,836,872 A * 11/1998 Kenet et al. 600/306
2002/0065468 A1 * 5/2002 Utzinger et al. 600/476
2006/0239547 A1 10/2006 Robinson et al.
2007/0167835 A1 * 7/2007 Yu et al. 600/476
2010/0210931 A1 * 8/2010 Cuccia et al. 600/328

OTHER PUBLICATIONS

Arimoto et al, "Estimation of Water Content Distribution in the Skin Using Dualband Polarization Imaging", Skin Research and Technology, vol. 13, pp. 49-54 (2007).

Attas et al, "Long-wavelength near-infrared spectroscopic imaging for in-vivo skin hydration measurements", Vibrational Spectroscopy, vol. 28, pp. 37-43 (2002).

Stamatas et al., "In Vivo Documentation of Cutaneous Inflammation Using Spectral Imaging", Journal of Biomedical Optics, vol. 12(5), pp. 051603-1-051603-7(2007).

* cited by examiner

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(57) **ABSTRACT**

The methods of this invention relate to means for measuring skin hydration. The methods of this invention utilize at least two wavelengths filtered by at least two polarizers to create digital images of skin treated with personal care products. The methods are useful for demonstrating the efficacy of skin care products intended to increase skin hydration and/or protect the skin from dehydration, even when such dehydration is not apparent to the naked eye.

6 Claims, 8 Drawing Sheets